1: Ingrams G-5 (1934-35)1936 MM2 Hadhramaut MM2

Rotation.—Heald states that mixed and overlapping rotations were found in Meifa and Asfal al 'Ain but, from careful enquiries, the following appeared to be the most popular:—Lucerne two years, followed by millet and the fourth year tobacco. If tobacco was not sown, the land was planted with another variety of millet. In some villages where lucerne was not grown, the rotation simply included tobacco and millet with sesame the third year.

In the Wadi Maseila the fields are constantly changed. One year a certain part of the wadi bed will be cultivated, stick huts and erections for drawing up the water built, and when the crop is harvested the Beduins move on elsewhere, returning again another season. Thus we frequently passed remains of cultivation, disused mud aqueducts and tumbled-down huts.

Diseases.—Heald states, "Excepting for the caterpillar attacking the young millet and tobacco, the crops were remarkably free from pests and disease; I carefully searched for stem borer in the millet but could find none, and also for the scale in the few citrus trees."

Trees and other vegetation of economic importance.

The *'elb* (*Sidr. Zizyphus Spina-Christi*, L.) has many uses. Apart from its blossoms, which are said to give the good taste to the Du'an honey, its fruit called *dōm* is eaten extensively by the Beduins when dates are lacking. The beams, pillars and doors of Hadhramaut houses are made from the timber, and the supply and carriage of the trunks give much employment to the Beduins. It also supplies good firewood. It is a fodder tree, and the leaves are also used as a substitute for soap.

Sār, a palm tree (*Hyphaene thebaica* (L.) Mart.), from which the Beduins gather the leaves called *sāf* for transport to the towns, where they are made into mats, baskets, country string, etc. A popular drink called *nebidh* is also procured from this tree.

The long-thorned *sumr* (*Acacia spirocarpa* Hochst.) is perhaps the commonest tree in the Hadhramaut. It is a popular fodder for camels and is likewise eaten by goats. It supplies good firewood and a substance taken from the roots called *futukh* is used by fishermen for greasing their lines in order to make them strong. Another thorny tree, the *qeradh* (*Acacia senegal* Willd.), is also a common fodder. Its leaves are used for tanning skins and it is said that the Beduins make a drink from them which they liken to tea.

The *musht* tree (*Grewia erythraea* Schweinf.), is used extensively for firewood and camel fodder. The leaves of the *ariata* tree (*Conocarpus erectus* Jacq.), which grows in the Wadi Maseila where it sometimes reaches a height of 50 to 70 feet, are dried for fodder, and the timber probably has its economic uses. I was told in Tarim of a large tree growing in Wadi Maseila the strong wood of which is used by carpenters; this may have been the *ariata*.

29:Dunn S-4 (1952)1952 MI Middle East

Hadhramaut MM2
Aden MM1

COTTON IN ARABIA

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PESTS AND DISEASES

"At first, as was to be expected, the cotton crop as a whole was remarkably free from major pests and diseases, but these are now beginning to appear. Bacterial blight *(X. malvacearum)*, has not so far been evident, the land having started clean and the seed having been introduced from Tokar where the disease is not prevalent. The almost complete absence of rain during the growing season also makes any secondary spread of the disease unlikely.

"Jassids are present in small numbers and may tend to increase, and American bollworm *(Heliothis armigera)* is beginning to appear in quite large numbers in Abyan.

"At Lahej the most serious pests are the red bollworm *(Diparopsis castanea)* and the pink bollworm *(Platyedra gossypiella)*.

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PROSPECTS

"It is unlikely that production of cotton in the Aden Protectorate will ever be on a very large scale as the area of land which can conveniently be flooded is limited. At present some 30,000 acres are in use in Abyan, of which 9,000 are under cotton and the target, when all proposed canals are finished, is about 50,000 acres, with cotton on about 20,000 acres in a good flood year. With developments in other areas the total area under cotton may be extended to 30,000 acres.

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RESEARCH AND EXPERIMENTATION

"The Senior Entomologist of the Empire Cotton Growing Corporation, at the request of the Director of Agriculture, visited Aden in January 1951 to make a survey of the insect pest position, and the Corporation's senior officer in the Sudan is now spending half his time in Aden pending full time employment by the Abyan Board later. He has started selection work on the X1730 A seed from the Sudan and is arranging for regular supplies of pure seed to be produced in the area. In addition other strains are being tested in the variety trials and observation plots, including a strain of Wilds which matures very early and occupies the land for only six months. If this proves successful it might enable a food crop to be grown in the same year as the cotton crop.

"A Colonial office mission also visited Aden early in 1951 to examine the technical, agricultural and financial problems involved and to make recommendations for the development of the scheme and the establishment of any research work that may be needed."

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ADEN

The crown colony of Aden located on a tiny peninsula on the coast of the protectorate actually dominates the area. Though the colony is only 75 square miles in area it has almost 100,000 people. The port of Aden has been an important trading center since the time of the ancients. This was the crossing point for the Abyssinians as early as 3,000 B.C. It was the final port of call for the Indian traders in the same century. It was also a chief port on the Indian trade route during the Roman times. Today Aden is the principal port and the commercial center for the entire Arabian Peninsula and one of the main crossing points for the African Moslems trekking to Mecca.

5:Gt. Brit., Colonial Office G-3 (1947) 1949 MM1 Aden
Hadhramaut MM2

ADEN PROTECTORATE

PART IV

Chapter 1 : General Review

WESTERN ADEN PROTECTORATE

647 DURING 1947 the Western Aden Protectorate continued to suffer from a shortage of experienced Political Officers. This position was aggravated by the murder in April of Mr. P. C. Davey, an officer of exceptional ability and experience. In consequence most districts were inadequately manned, with the result that it proved difficult to consolidate the progress of the past few years and in some cases there was some deterioration. The Arab Assistant Political Officers, of whom there are at present seven, have of necessity been the backbone of the Western Aden Protectorate administration during the past three years owing to the shortage of experienced British Political Staff.

631 The Fadhli, Dathina and Subeihi administrations carried on with very little change. The two former show a very much-improved financial position. The Amiri country started the year with the removal after a show of force of Amir Haidera and, after an unhappy year of strife and intrigue, ended it with the establishment of a constitutional form of government.

643 In the Abdali State the death of the Sultan, His Highness Sir Abdul
642 Karim Fadhl bin Ali, K.C.M.G., K.C.I.E., who has been succeeded by his eldest son, Fadhl Abdul Karim, and who was a sincere and experienced ruler, was much regretted by his people. On the acclamation of his successor a new constitution setting up a State Council was established and is now in operation.

721 In Beihan the Sultan encountered difficulties with the Balharithi tribe in the far north, and the situation had to be settled by air action.

There were trade-route incidents in Quteibi country, in Wadi Hardaba (Radfan), in Mansuri country (Manqa'a), in Marqashi country (Fadhli) and in Rujeili country (Wadi Teim in Radfan), involving losses of life and heavy lootings. Lootings in the Quteibi territory assumed such proportions that it was necessary to restore normality by air operations. The incidents in Marqashi were satisfactorily settled by administrative action. The other incidents still remain to be settled.

242 On the other side of the picture agricultural development in Abyan has had a most beneficial effect in this southern area in spite of the uncooperative attitude of the Lower Yafa'i Sultan. This attitude led finally to his suspension from office in the Yafa'i as Sahil area of his territory. In contrast, the willing co-operation of the Fadhli authorities in fostering

S.Gt. Brit. . Colonial Office G-3 (1947) 1949 MM1 Aden
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the development of agriculture and irrigation in Abyan has been much appreciated. 242

During the latter part of 1947 it was possible to station a Political Officer in the Abyan and Ahwar areas. His presence and the benefit of increased production in the area have contributed to the appreciable success of the Abyan experiment during the year.

EASTERN ADEN PROTECTORATE

In the Eastern Aden Protectorate considerable political activity was shown by various sections of the Qu'aiti and Kathiri states. In the former, two parties were formed in March, one the National party and the other the Hadhrami party. The latter is for Hadhrami unity, in which it agrees with the Seiyid party of the Kathiri state, which also showed some liveliness at the start of the year. Later, however, the Seiyids began to concentrate less on the general question of Hadhrami unity and more on the immediate question of escaping from paying double taxation. Several committees were formed with this object and in April a deputation waited on the Resident Adviser, whose answer to them was that it was for the Qu'aiti and Kathiri states to co-operate in the matter of lightening the burden of taxation of their subjects. Later the Seiyids sent a telegraphic plea to the Governor and Secretary of State. 615

Meanwhile the National party remained anti-Seiyid and, on the whole, anti-unity. In April they published a manifesto of their aims on the front page of the Aden newspaper, *Fatat-al-Jezira*.

The Arab cause in Palestine continued to arouse considerable sympathy in the Eastern Aden Protectorate. This came to a head in December after the United Nations Assembly had recommended partition and took the form of processions (without violence) and the opening of subscription lists. Telegrams were sent to the Secretary of State and there was a one-day strike in Mukalla and Sai'un. 664

In both Qu'aiti and Kathiri states democratic changes were made in the administration. In the latter a State Council was formed in April and met for the first time in May: it consists at present of three *ex-officio*, three official and three unofficial members. In June the Qu'aiti State Council Decree was amended to allow the representation of provincial communities with the intention of improving relations between the Government and the provinces. These communities were not previously represented. 646 642

Outstanding boundary disputes between the Qu'aiti and Kathiri states remained unsettled throughout the year. 631

Security continued to be disturbed throughout the year in the north-west on the boundaries with the Yemen and Sa'udi Arabia and to a lesser extent in the Wahidi area on the boundaries of the Western Aden Protectorate. In January the Kazimis looted a caravan on its way to Habban. In March there was a big raid by the Dahm and Abida (Yemeni) on the eastern coastal area. In May the Upper Aulaqi (who owe allegiance to no one) attacked Amaqin in Wahidi; in that month also the Sei'ar 721 619

6:Gt. Brit., Colonial Office G-3 (1948) 1950 MM1 Aden
Hadhramaut MM2

(B) EXPORTS

No.	Commodity	No. of packages	Quantity	Value Rs.
1.	Tobacco, native	13,236 bdls.	16,858 cwt.	8,93,650
2.	Honey in comb	—	5,200 lb.	5,600
3.	„ cleaned	—	1,020 „	2,550
4.	Dates, country	—	900 „	220
5.	Lime	3,879 bags	4,000 cwt.	15,500
6.	Sheep and Goats' skins, tanned	—	10 scores	1,000
7.	Dried lemons	229 bdls.	581 cwt.	33,000
8.	Fish oil	17,049 tins	68,195 gln.	1,27,860
9.	Miscellaneous	—	—	2,93,380
			TOTAL	13,82,760

Chapter 7: Agriculture and Fisheries

AGRICULTURE

In 1948 farming conditions were generally poor in the Aden Protectorate. Conditions of 1947 were reversed in the areas west of the Bana river, which had a poor 1947 season, received fair rainfall and flood conditions, while east of the Bana erratic and poor rainfall over large areas reduced food production to a low level. This was particularly true of the Hadhramaut and other eastern districts where complete drought returned to the country, causing famine conditions to reappear at the end of the year. The shortage of food was accentuated in those areas where the economy of the country is largely dependent on remittances from abroad. Famine appeared particularly in the Wadi Amd and in Rakhya, where food production is not secured by any irrigation from underground supplies, but is dependent entirely on rain and runoff control. These districts are also partly dependent on remittances from Hyderabad and became particularly affected when India invaded Hyderabad, and currency decrees in Hyderabad cut off the flow of remittances. The scarcity of food was further aggravated by the ban on exports of grain from the Yemen.

Staff

The technical staff of the Department of Agriculture consists of a Director, two Agricultural Officers (to be increased to four), an Agricultural Assistant and six Agricultural Instructors.

The Abyan Development Scheme has the part-time services of an Irrigation Adviser.

Rainfall Crop and Livestock Conditions

In the districts west of the Bana river *saif* rains were fair, particularly in the highland areas. East of the Bana river *saif* conditions were poor in many districts, but in Beihan conditions were good and the Wadi ran no less than eleven floods. Most of this water was from the runoff of

6:Gt. Brit., Colonial Office G-3 (1948) 1950 MM1 Aden
Hadhramaut MM2

Market Conditions

Food grain prices showed no reduction during the year. Prices at the main coastal centres of Aden and Mukalla fluctuated between £25 and £37 per ton, the higher rates being recorded in Mukalla towards the end of the year, when famine conditions were confirmed in the Hadhramaut.

The price of sesame seed fell from the high levels of 1947, and the price during the year varied between £60 and £70 per ton.

The Maria Theresa dollar exchange dropped 23½ per cent at the end of the year, Rs. 186 being asked for 100 dollars.

Demonstration and Experiment

In the Hadhramaut the introduction of barley passed the third season; it may be claimed that the crop has found favour and that it is most likely to become well established in the economy of the country. The object of this introduction was to obtain a more dependable crop for winter sowing. Wheat was in the past the winter crop, and always a risky one owing to the danger of rust attacks. Barley in southern Arabia is regarded as a safer crop in all respects, but for some reason it escaped the attention of farmers in the Wadi Hadhramaut.

In Abyan cotton variety X1730A was grown on a field scale on Abyan Board tenants' land. The crop was sown on land inundated in August with approximately three feet of water. No other water was applied after sowing. At the end of the year, the crop appeared most promising.

Plant Introduction

Three-hundred and fifty apricot, 350 Japanese plum, and 24 peach trees were imported from South Africa, for sale to farmers on the Audhali Plateau.

One hundred citrus trees were imported from Eritrea, for planting and distribution in Abyan.

Development Schemes: The Abyan Board

Work on improvement of the systems of the Na'aza and Ba Tes canals was carried out in the first nine months of the year. A stone regulator at Ba Tes head and a series of stone drops and regulators were installed on this system and on part of the Na'aza system. Much work remains to be done, and in a manner which will allow of the improvement to be incorporated in the general plan of development . . . the area.

Following further examination of the area by Mr. N. Simansky, Irrigation Adviser, it was possible to submit an application for a loan of £250,375 from the Colonial Development and Welfare Fund. Sanction for this loan was obtained in July, and work started in the last quarter of the year. Machinery and cement were ordered, while local purchases were made from ex-War Department stocks held in Aden. At the end of the year, two Agricultural Officers, one of whom acted as manager to the Board, one British and three Italian surveyors, and one British accountant, together with a large Arab staff were employed on the scheme.

The development programme of the Board continued side by side with

6:Gt. Brit. Colonial Office G-3 (1948) 1950 MM1 Aden
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241 the management of irrigation farming on some 5,000 acres. The value
242 of the Board's quarter-share of the net crop obtained, after paying harvesting and threshing expenses in kind, was estimated at over Rs. 1,25,000.

Farming in Abyan, largely influenced by the Board's operations, proved important to the economy of the Western Aden Protectorate. In the production of millet alone, it is estimated that a 30,000 bag crop, equal to 3,000 metric tons, was raised. A large portion of this was held as a reserve, or had been marketed to the easterly districts at the end of the year. General control on the export of this grain to Aden itself was maintained, and the flow of the crop to the districts to the east was encouraged.

The Wadi Hadhramaut Rehabilitation Scheme

654 This was wound up by Government at the end of the 1947–48 financial
426 year. Farmers with outstanding loans were given ten years in which to repay, the basis of repayment being at the rate of 2 per cent of the total loan from the spring crop, 3 per cent from the autumn crop, and 5 per cent from the winter crop grown. By the end of the year, it was apparent that this system of deferred repayment was not proving satis-
[452] factory. Moneylenders had again become active, while late planting and reduced acreage were noticeable in many districts. This undoubtedly resulted from lack of foresight on the part of many farmers, who had failed to reserve sufficient seed and fodder and preferred to resort to moneylenders for obtaining their needs on credit.

406 At the end of the year, proposals were on hand for the introduction of numbers of diesel-driven irrigation pumps for use in the Wadi Hadhramaut.

Co-operation

476 The Beihan Farmers' Association, formed in the previous year, progressed in a satisfactory manner, and much useful experience was gained by the officials of the association. A good *saif* season helped the members, but this was followed by an almost complete lack of water in the *kharif*. In spite of these difficulties, the association was able to help its members in their requirements of seed, stock, and cash needed for well equipment and for concentrates for feeding livestock. At the end of the year, the association had acquired some Rs. 12,000 from members' subscriptions and from interest charged on loans.

476 This association cannot be termed a co-operative society in the true
659 sense of the word. It is an association which has the full support of the local Government, and which at present makes use of Government offices and storehouses for its activities. In the present stage of development this is considered to be the most desirable form of association for Beihan.

Western Aden Protectorate

226 The Western Aden Protectorate fisheries are of minor importance
361 compared with those of the Eastern Protectorate. Shuqra, the seat of
439 the Fadhli Sultan, is, however, a fishing port with a considerable export trade in dried fish

7: Gt. Brit., Colonial Office G-3 (1949-50) 1951 MM1 Aden
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to the Hadhramaut. This winter rainfall enormously improved the range conditions over the mountain areas of the Protectorate and produced exceptionally good pasturage for the desert tribes in the north-east. 132

Large acreages of winter cereals and fodder crops were grown. The year finished with the whole of the Protectorate in good condition. 241

Livestock started the year in many areas in a starved condition, and in the east with their numbers greatly reduced. At the end of 1949 their condition was restored, but numbers, particularly of small stock, were low. 231

Plant Pests and Diseases

As a result of the favourable rains and the continuance of sorghum cultivation through the Saif season, to the flood crop of the Kharif, and into the lift irrigated crops planted in autumn, 1949, there was a serious increase in the stalk borer population, and an estimated loss of up to 50 per cent of the crop resulted in the Hadhramaut lift irrigated areas. 731 242

Animal Health

No outbreak of rinderpest or other serious animal disease was recorded during 1949. 731

Market Conditions

With the devaluation of the pound the value of the Maria Theresa dollar rose nearly 30 per cent in relation to rupee currency. Produce prices remained high until autumn, 1949, when a sharp drop occurred in many districts following the good harvests. Sorghum grain on the Aden market averaged about £35 per ton throughout 1949. 155

Demonstration and Experiment

A field trial with X1730A cotton grown from Abyan raised seed was very successful in 1949; some 1,750 lbs. of seed cotton per acre was obtained from scattered plots totalling 82 acres which had received one watering only before planting. The crop was planted in the months of September and October, and grew rapidly. In some fields plants reached a height of over 6 feet and carried an enormous crop. No important pests or diseases were seen. 242

The crop was classified by the Chief Classifier of the Sudan Plantation Syndicate, who was flown over for the purpose; he placed about half the crop in grades 3 and 4, and the balance in grades 5 and 6, basing his classification on Sudan Gezira standard for L type cottons. The graded crop was sold to the Raw Cotton Commission.

Varieties of cane, introduced in small quantities from Mauritius in the previous season, were cut in September, 1949, and planted out in observation plots.

7: Gt. Brit., Colonial Office G-3 (1949-50) 1951 MM1 Aden
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Plant Introductions

137 242 Sann hemp and Dolichus beans were introduced from the Sudan. Tepary beans, bunch-type groundnuts, and velvet beans were introduced from Uganda. These new introductions were planted in observation plots in the Abyan district.

The introduction of deciduous fruits and of citrus for planting in the Audhali Sultanate continued.

Development Schemes

654 *The Avyan Board.* During 1949 the scheme, now furnished with sufficient capital to embark on its work as a proving scheme, developed at a satisfactory rate in all fields where adequate staff, machinery, and materials could be mustered.

406 654 332 A rebuilt D.7 Caterpillar tractor complete with bulldozer and carry-all scraper, and three D.4 Caterpillars, one with bulldozer attachment, were obtained through the Crown Agents. These rebuilt tractors were delivered without any spares and gave a certain amount of trouble, but were responsible, together with a D.6 Caterpillar already in the hands of the Board, for great progress in irrigation construction.

Important extensions were made to the Ba Tes and Na'aza systems, while two new diversion systems were opened on the Wadi Hassan.

The tractors were generally worked as a fleet, with a mass of ox power owned or hired by the Board. Often 200 yokes of oxen—each with a scraper attached and each yoke with its driver/scraper operator in attendance—worked alongside the tractors. These were used for ripping and drawing masses of earth close to the dykes, which were then finished off by the oxen.

The value of the D.7 was judged to be equal to 150 to 200 yokes of oxen in earth-moving capacity, but for finishing off work and consolidation the use of oxen has been found to pay. Earth-moving costs have been low, and on short hauls of work of moderate height costs have not exceeded 6 annas per cubic metre.

654 Survey work has accelerated and a staff of 6 surveyors was at work in the field at the end of 1949.

A great deal of the Board's effort was devoted to the construction of offices, workshops and staff houses. At the end of 1949 substantial progress had been made and building, apart from some additions to staff houses and a projected pilot ginnery, had been completed.

The Board staff was increased considerably. On irrigation matters the Board continued to receive advice from Mr. N. Simansky, Irrigation Adviser to the Government of Jordan, who visited Abyan twice during the year. In September the staff was strengthened by the addition of an Irrigation Engineer, Mr. Douglas Hall, who joined the Board as Chief Engineer. In November Mr. B. May joined the Board on secondment, as Chief Accountant, the office having remained vacant since the resignation of the first Accountant Officer at the end of March. These two appointments were long overdue, and serious arrears of work had to be faced by both officers on taking up their appointments. In the

7: Gt. Brit., Colonial Office G-3 (1949-50) 1951 MM1 Aden
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accounts section the position was particularly serious ; but equally important was the lack of essential hydrological data on such matters as river discharges, the availability of suitable storage sites, studies on percolation and so on. Without such information progress must be delayed. 654

As mentioned earlier, the X1730A type of cotton planted on 82 acres in 1948, proved a great success. The crop was ginned and marketed by the Board, and arrangements with cultivators for the new season's planting resulted in an extension of the acreage to 1,097 acres. At the end of 1949 the crop showed great promise, and in many areas appeared even better than the previous year's crop. 248 242 654

Grain, oil-seed and fodder production was satisfactory, though grain yields were reduced in many areas through double-cropping the land with a sorghum fodder crop in the Saif season and then a grain crop in the Kharif.

A great deal of the land in Abyan which has been well irrigated for the past five years is now becoming heavily infested with weeds, mainly the weed grass *Desmostachya bipinnata*. The introduction of cotton as a cleaning crop and the " drying up " and resting with or without cultivation, of these heavily infested lands is now recognised as an urgent matter. In order to tackle the weed problem the Board increased its tractor strength by the purchase of three Fowler Diesel crawler tractors in the last quarter of 1949. 654 137 242

Another problem which came to notice towards the end of 1949 was the rapid rise in the height of the water table in certain areas. The area involved does not exceed 300 acres, but already in this area (where in places the water table has risen to within six feet of the surface) salts are appearing in the upper layers of the soil, and vegetation, particularly in the seedling stage, has been affected. It was noticed that cotton, once established, flourished and appeared exceedingly healthy on these salt-impregnated soils. 133 242

Anti-Famine Measures

In the first four-and-a-half months of 1949 until general rains fell over the Eastern Protectorate, famine again threatened human life in the Hadhramaut. Relief measures were introduced, as in the previous famine, but this time so promptly that practically no deaths from famine occurred. Again aircraft of the Royal Air Force came to the rescue and dropped grain supplies to the worst affected areas. Large quantities of grain were moved inland by motor transport and any camel transport that could be mustered ; at the same time large numbers of the destitute, particularly women and children, were brought down or walked down to the coastal towns, where they were accommodated in refugee camps and fed. To employ labour on relief works an extensive programme of road construction, and irrigation repair works and new construction was undertaken. 731 [653]

When rain fell, it was again found necessary to issue loans to

8:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
Hadhramaut MM2

There has been close co-operation between the two States; they jointly operate a workshop in Sai'un for repairs of pumps and agricultural machinery and maintain an Agricultural Department in the Wadi. 654 647

In the Wahidi Country an administration has been set up under the advice of a Political Officer. Progress in extending the administration to outlying areas has continued and a start has been made in local government in the few small towns of the area. Experiments have been carried out in cotton and sugar cultivation. 631 [242]

The Sultan of Mahra and Socotra died in February, 1952. In Socotra Sultan Isabin Ahmed Afrar has been elected his successor but he has not been given formal recognition by Government as his election has not yet been confirmed by the mainland chiefs.

Details of Colonial Development and Welfare Schemes in progress during the period are given in Appendix II at the end of the report.

B:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
Hadhramaut MM2

The above figures are derived from estimates checked by sampling, except in the case of the long-staple cotton for which actual figures are available. 241

Outstanding yields of long-staple cotton have been obtained ; yields of one ton of seed cotton with a ginning out-turn of 36 per cent often occur. Yields of irrigated wheat and barley are generally high : wheat yields of 1½ tons per acre are common in the lift-irrigated districts.

Crop Processing

Cotton Ginneries. Long-staple cotton is ginned in two ginneries operated by the Abyan Board, and the total output in the 1951-52 season was 7,206 bales. At the end of 1952 plans were in hand to combine ginning equipment at one ginnery in Lower Abyan. 248 249

Oil Mills. Throughout the Protectorate sesame is crushed in primitive pestle and mortar crushers worked by camel power.

Marketing

Crops for domestic consumption are sold direct by the producer to the consumer, or through merchants, or at markets which are often weekly events in the villages and towns of the Protectorate. 443

Tobacco is exported from the Protectorate by merchants who trade in the Colony of Aden and Middle East markets. 439

Substantial quantities of fresh produce, vegetables and fruit are exported from the Protectorate to the Colony to be sold in the Colony markets.

No marketing boards for export crops exist, but the Abyan Board is at the moment in sole control of the grading, ginning and export of long-staple cotton grown in the Protectorate. 248

Research

Research on cotton and cotton breeding is carried on by the Abyan Board. 242

In the Hadhramaut, the Hadhramaut States contribute funds to an experimental area supervised by an officer of the Department of Agriculture. In this area, which was opened in 1952, investigations on crop production, crop varieties, treatments and water duties have been started.

In the Western Protectorate many varieties of deciduous fruits and citrus have been introduced over the past 14 years, and it is considered that there are sufficient trees in bearing to start on nursery propagation of suitable types. Initial trials have been made at a high-altitude demonstration area on the Audhali Plateau.

Control of Pests and Diseases

Since 1942 efforts have been made, generally with success, to control locust breeding in the Protectorate, which is subject to constant invasions by locusts from other areas. The control of covered smut of sorghum by the use of sulphur for seed treatment has been introduced to areas where damage from this plant disease is common.

8:Gt. Brit., Colonial Office G-3 (1951-52)1954 MM1 Aden
Hadhramaut MM2

APPENDIX 1

THE ABYAN SCHEME

Purpose

(a) To utilise all surface flow and suitable underground supplies of water in order to develop and maintain irrigation farming in the Abyan district.

(b) To organise and develop the production of food crops and cash crops, and to assist in their marketing.

(c) To increase the wealth and prosperity of the people and the Governments of the local States and of the Protectorate.

Background

The Abyan district is one of ancient development for irrigation farming. Centuries of insecurity made the area derelict, until the settlement of a feud and the entry of H.M. Government to maintain law and order.

From 1941 to 1943 efforts were made to restore, by traditional methods, irrigation of the southern part of the district. In 1943 Government entered the derelict areas of the southern and central sections and a four-year development plan was started to restore and maintain irrigation systems on traditional lines. Control was in the hands of the Department of Agriculture; funds were provided by the Colony of Aden as part of the increased food production campaign; irrigation charges of one-quarter share of the crop were levied.

In 1947 the Abyan Board was formed by an administrative order of the Governor of Aden. The Board was accepted by the two States whose territories were covered by the schemes. In December, 1948, a loan of £20,000 was approved from Colonial Development and Welfare funds. In August, 1948, a further £250,000 was approved. With these funds the Board embarked on the initial stages of its plan of development.

Organisation

Development was on a partnership basis between:

(a) Landowners (the States, private individuals or trusts) who provide land;

(b) owner occupiers and tenant farmers who provide the working animals, implements, general farming capital, and the labour for crop production; and

(c) the Board, a development authority, which undertakes the construction of irrigation works, maintains the irrigation system, and regulates the distribution of irrigation water. The Board also maintains special control over the cotton crop which is sold to the Board at agreed prices, processed in the Board's ginneries, and sold to the Raw Cotton Commission.

Up to 1949–50 agricultural production was primarily concerned with the cultivation of sorghum and sesame. Trials with long-staple

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Trials with Long-staple cotton, introduced in 1946, proved successful and this crop has now been chosen as the main crop for the area.

Payment for irrigation services has always been based on a crop share of 25 per cent payable to the Board. The present crop share and taxation on the crop, as laid down in an agreement dated 1st April, 1950, is as follows :

PARTY	LIVE LAND (*Land developed and cultivated for 5 years*)	DEAD LAND (*New land opened for cultivation*)
	%	%
State (Taxation) . .	5	10
Landlord . . .	20	15
Tenant . . .	50	50
Board . . .	25	25

To secure rapid development, traditional methods have been used while the land has been surveyed and existing canal systems aligned and new canals of improved design have been constructed. Diversion is still by traditional methods but regulators have been constructed in the upper part of the district.

Land and Water Rights

The Board does not own or control any land except building sites and experimental areas loaned from the local States and, in one case, rented from a landowner.

The Board controls the diversion and distribution of all flood water in the district. In the winter season the Board purchases the permanent flow of the Bana River from the Lower Yafai Sultan and his relatives and distributes this supply through the canal system to farmers who pay the customary crop share to the Board.

Tribal boundaries and settlements of title to the area have been ill defined in the past years of insecurity, but in 1951 final decisions were taken regarding tribal boundaries.

Survey

Since 1948 an area of 100,000 acres has been contour surveyed to a one metre interval. Geophysical surveys, the first as a reconnaissance and the second in fairly detailed form, have been made.

Irrigation Development

Development is in various stages. An area of approximately 50,000 acres of land is now controlled for irrigation farming, mainly on traditional lines. The normal flood flow to the area is expected to be sufficient to crop 30,000 acres yearly. In the 1951 flood a discharge of 224,000,000 cubic metre was observed to reach Abyan in the Bana River and this quantity, if correctly controlled, would have been sufficient for the irrigation of 50,000 acres. In actual fact only 30,000 acres were irrigated. The system is to direct flood water at speed, by diversion weirs made of brushwood and stone, into canals

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654 which carry the water to bunded fields where the land is inundated to
312 approximately one metre in depth. In the lower part of the district complete diversion of the flood is made by larger earth dams built
241 across the river bed. Generally one metre depth of water is sufficient to raise the crops of sorghum, sesame and cotton, though summer planted crops which have to grow when water is low are given one or two supplementary irrigations.

The date of arrival of the floods is uncertain and the pattern of crop production may alter considerably according to the date of irrigation. For instance, early summer floods will only be used for sorghum fodder, grain, melons and sesame. Later summer irrigations are particularly required for cotton planting and for the autumn sown sorghum crop.

The Farming System

Skilled cultivation is carried on by settlers from many South Arabian tribes who have come to the area since the start of the scheme. Bunding of land, construction of field channels, ploughing and sowing are carried out by draught animals, mainly oxen though camels are brought in to help occasionally. No fertilisers are used at present ; the flood brings with it a heavy burden of silt which reaches the land and maintains its fertile state.

The basic problems concern the farming system. One is largely an irrigation problem caused by a rapid rise in the water-table which has taken place since irrigation was resumed. This rise in the water-table has caused an accumulation of salts in the upper layers of the soil, and has already made crop production on 2,000 acres practically impossible by flood irrigation methods. The other problem is weed control. As a gross area of 100,000 acres may be commanded in the future, and within this area an annual average of 30,000 acres may be cropped, it should be possible to afford long periods of fallow to land in order to reduce the dangers which may arise from heavy irrigation ; but individual ownership of land will greatly complicate such arrangements.

248 At the present time the cotton variety X.1730A, a derivative of
243 Sakel, is the main cash crop grown. All other cash crops in the
246 scheme are common to those of other irrigation tracts of a similar type in South Arabia though there are experimental crops, of which sugar is one. An important feature of the scheme is the need for a large area of sorghum for grain and fodder production. The draught animals depend almost entirely on sorghum fodder for their sustenance and the main food of the people is sorghum millet. It is expected that for some time two-thirds of the area will be maintained under sorghum and one-third under cotton.

Mechanical Equipment

406 The Board owns earth-moving machinery powered by diesel-engined
245 crawler tractors with carry-all scrapers, bulldozers, a ripper and grader and two drag-line scrapers. The policy of the Board is to increase the

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mechanical equipment required for irrigation construction and maintenance in order to release work oxen for field operations. Up to the present shortage of equipment, break-downs and delays in obtaining spares have made it necessary to employ large numbers of working cattle on earth-moving and general irrigation works.

The Board also owns a fleet of twelve diesel-engined crawler tractors for ploughing work. Considerable difficulties have been encountered in maintaining this tractor fleet.

Administration of the Scheme

The present composition of the Board is :

British Agent, Western Aden Protectorate	Chairman.
Director of Agriculture, Aden Protectorate	Managing Director.
Senior Political Officer, Southern Area	Director.
Two Representatives, (Fadhli State)	Members.
Two Representatives, (Yafa'i State)	Members.
Manager, Abyan Board	Secretary.

The Board is responsible for the construction and maintenance of capital works and of main and minor canals ; the development of new land for irrigation ; the delivery of water to the land ; provision of marketing and credit facilities to farmers, when necessary.

The Board receives one-quarter share of the crops grown. This is now based on a cash payment of *Shs.*40 per effectively cropped acre for all crops other than cotton. The assessed amount is deducted from the cash payment made for the cotton crop.

The Board in the 1952-53 season made a cultivation advance of *Shs.*90 per acre of effectively established, thinned and cleaned cotton.

The Board provides seed-cotton packs and conducts weekly markets at convenient centres throughout the area. The cotton is classified at the markets by an expert cotton classifier. Each pack carries the grower's identification number, the weight as recorded at the sale and the market identification letter. A record is made of quantities sold at each market by growers and cash is paid after deduction of the Board's share. The cotton is ginned and baled in a ginnery equipped and run by the Board. The whole of the graded lint is sold under a long-term contract with the Raw Cotton Commission. The Abyan X.1739A is regarded by buyers as equal to Sudan grown crop of similar type.

Tenants make up and maintain bunds and field channels, cultivate specified crops as the Board directs, pay the crop share due, and deliver crops such as cotton to markets as directed.

Landlords, if owner occupiers, cultivate their own land and follow

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242 [429] conditions as for tenants. If not owner occupiers, they take responsibility for debts incurred by tenants, to whose settlement or eviction they must agree.

Finance

	Sales bale of 400 lb.	*Value* £
1949	100	5,270
1950	1,587	121,450
1951	9,890	867,088
1952	6,300	725,810

The contract with the Raw Cotton Commission extends to the season 1955–56.

Seed was sold to the value of £86,500 in 1951 and £54,870 in 1952.

Expenditure of approximately £20,000 loaned by the Colony Government on the first stage of the scheme in 1943–46 was refunded in part, and the balance handed over in the form of improvements and working capital to the Abyan Board on its formation.

Capital liabilities for loans stood at £278,307 at 30th September, 1952.

At the same date, after disposal of the current season's cotton crop, there were fixed assets worth £324,693. Cash and investment funds were available for the provision of £400,000 to a general development reserve; £180,000 to a revenue stabilisation fund; and £25,000 to a sinking fund.

Social Effects

The Scheme has had great beneficial influence on the general economy of the Aden Protectorate.

728 Peace and security have been extended to an area formerly insecure and the area has been settled by members of many tribes formerly at feud with each other in the Protectorate.

164 The Scheme has also been responsible for the virtual eradication of malaria in the district. This work conducted by the Protectorate 742 Medical Service has been assisted by the Board which has guaranteed 242 to provide a minimum of £26,000 per annum to a joint States' Medical Service; it has also agreed to provide £20,000 for the building of a hospital.